Public Works (1902) Department.

G.O., No. 1418 I

DATED 5th Decr 1902

[Despatch Abstract.]

Peranai Suit. Pro, Rev. Dept., recording letter from the Collr. of Madura reporting that the — has been adjourned from 3rd December 1902 to 21 Jany 1903 for final disposal, recorded.

Despr

P. W. 25.
2,000—2-9-02.

Indexed 8/12

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Public Works (1902) Department.

CURRENT No. 11576

FROM

THE REVENUE DEPARTMENT.

Mis No. 2732	Received ______ 190
Dated 18th November 1902	Registered 20.11. 1902
Enclosures	

SUBJECT.

Recording letter from the Collr. of Madura re. the adjournment of the Peranai suit from the 3rd Decr: 1902 to 21st Jany: 1903 for final disposal

No. 1418 d/- 5.12.1902

BACK PAPERS.

Order thereon

Recorded

DESPATCHED -5 DEC. 1902

To The Chief Engineer for Irrig.
. Supt. Engineer Circle

[illegible] 24/11/02 D.J.

Issue
[illegible] 24/11/02

FURTHER PAPERS.

$\frac{B.}{16}$ 3,840—8-3-01.

Revenue Department.

GOVERNMENT OF MADRAS REVENUE DEPARTMENT

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following letter from the Collector of Madura, Ref. on C.No.2516/G1. dated 8th November 1902:-

I have the honour to report that in view of the short interval between the date of hearing and of the injunction appeal in the High Court, the Peranai suit has been adjourned from 3rd December 1902 to 21st January 1903 for final disposal.

ORDER thereon Mis.No.2732 Revenue dated 18th Novr. 1902.

R E C O R D E D .

(True extract)

[signature]

for Secretary to Government.

Copy to the Board of Revenue, Land Revenue.

,, ,, Public Works Department

SRG
18.11.02

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—again the following papers:—

G.O., No. 584 I., dated 29th July 1898.

Abstract.—Forwarding for the consideration, and orders of the Government of India, estimates for lowering the bed of the Periyár escape channel and for removing the parapet of the main dam.

G.O., No. 434 I., dated 12th April 1902.

Abstract.—Sanctioning an estimate, amounting to Rs. 6,770, for investigating a site for a storage reservoir on the plains in connection with the Periyár project and ordering a copy of the Proceedings to be forwarded to the Government of India for information.

G.O., No. 420 I., dated 9th April 1903.

Abstract.—Directing the Superintending Engineer, VI Circle, to submit plans and estimates or the falling shutters of the Periyár escape channel as recommended by the Inspector-General of Irrigation and ordering a copy of the Proceedings to be forwarded to Government of India for information.

Read—also the following papers:—

From C. J. USSHER, Esq., Superintending Engineer, VI Circle, to the Chief Engineer for Irrigation, dated Trichinopoly, 4th September 1903, R.O.C. No. 456 M.D.

With reference to G.O., No. 420 I., dated 9th April 1903, I have the honour to inform you that, on receipt of the Government Order, I wrote to the Executive Engineer, Madura division, asking him to describe his proposals regarding the Periyár Extension Scheme and to state the effect the scheme, if carried out, would have as regards the disposal of the flood discharge from the Periyár catchment. I enclose a copy of Mr. Keeling's reply from which it will be seen that the extension scheme consists of two parts: (1) Raising the Periyár lake F.S.L. from + 144·0 to + 152·0 thereby increasing the storage by about 2,500 million cubic feet. Forming a cut through Kumili, and a reservoir at a site between Kuruvanuth and Cumbum with a capacity of about 5,000 millions cubic feet. (2) Diverting the Pambyar and a portion of the Kullar rivers into the Periyár lake and thereby increasing the catchment area of the lake by about 60 square miles.

With scheme No. 1, the question of the utilisation of the Periyár water for the development of electrical power is associated.

2. As regards the progress made with the investigation, survey and levels have been taken at the proposed site for the reservoir, and levels have been taken for the proposed cut through Kumili, but not systematic borings, which I have now ordered to be taken. The country has been to some extent explored and some levels taken from the Pambyar river to the Periyár lake. The working out of the details of the schemes and the preparation of the plans and estimates (especially if combined with a power installation) will involve a great deal of work, and I concur with the Executive Engineer in the opinion that it would be advisable to place an officer on special duty.

3. It is pointed out in paragraph 12 of Sir T. Higham's note printed with G.O., No. 420 I., that any increase in the present storage will necessitate greater escape facilities, and it will probably be necessary to cut down the present escape level to about level 136, if, as proposed, the F.S.L. should be raised to level 152. The depth of the shutters for the regulator would then be 16 feet, so that, if a regulator with 6 feet shutters and 40 feet span were now estimated for and constructed, it would be, I think, impracticable to alter it so as to suit the new conditions. With regard to falling shutters to hold up water to a depth of 4 feet, I greatly fear that, as at the Uppar Odai Dam, loss of water would occur in the working of these shutters, and, of course, the outlay would be money thrown away, should it be decided in the near future to increase the F.S.L. of the lake. I have therefore to request the favour of your further orders regarding the preparation of the estimates called for in the Government Order under reference. Setting aside the Pambyar diversion (which, so far as I can form an opinion on the scanty information available, I consider an unlikely scheme), there appears to be no reason why the question of raising the lake F.S.L., and deciding the nature of the surplus works should not be settled without waiting for the completion of the investigation, connected with the proposed storage reservoir in the plains.

4. In connection with the estimates for the escape, and also with reference to paragraph 3 of the letter from the Under Secretary to Government of India, Public Works Department, printed with the Government Order, I have lately carefully examined the rock in the run-off channel, so far as was possible without excavating. The scarp of the scour which has taken place in rear of the masonry bar forming the weir is at one place, near the centre, within 35 feet of the weir and is nowhere more than 150 feet from it. There is an almost vertical overfall of some 20 feet depth and the scarp shows sound bed rock only at the northern portion. This rock dips sharply, and the whole of the southern half of the scarp shows nothing but unsound rock and boulders, such as would not withstand the action of long continued and heavy floods. It is, of course, possible that sound bed rock may have been met with in the cutting right across, but I have been unable so far to ascertain whether this was so. It is an important point, for, not only would the piers of the regulator have to be founded on sound rock, but also the downstream wall connecting the piers, and it seems quite possible that it may be necessary to go to a very considerable depth to obtain sound rock.

5. As the proposal to remove the parapets of the main dam for a length of 500 feet has been approved, as a supplementary measure to lowering the bed of the escape and providing shutters, I request that I may be informed whether the estimate for this will be sanctioned at an early date and funds provided.

6. In conclusion, there is another point I wish to bring to your notice and that is that the Periyár catchment never seems to have been even thoroughly explored and after the lapse of all these years, the catchment area is still unknown and guessed at. A party of the Government of India Survey accustomed to hill work would be able to fill in the blank space in the map at no great outlay of time or money, as a detailed survey of the whole area would not be required. I would suggest therefore that steps should be taken to have the survey made, which might include a survey showing the Pambyar catchment.

ENCLOSURE.

From H. T. KEELING, Esq., A.M.I.C.E., Executive Engineer, Madura division, to the Superintending Engineer, VI Circle, Trichinopoly, dated 1st July 1903, No. 302 S.E.

With reference to your No. 456/M.D. forwarding G.O., No. 420 I., dated 9th April 1903, I have the honour to reply as follows.

2. The Periyár extension scheme consists of two schemes which may be considered separately or together. One is a scheme for impounding and utilising the surplus water from the present catchment, and the other is the diversion of the water from another and contiguous catchment into the Periyár lake.

3. The first scheme consists in providing additional storage—

(a) by raising the full lake level to 152.
(b) by making another reservoir on the Vyravanar and providing for increased discharge from the present reservoir by means of a cut through the watershed ridge.

4. With the exception of digging a few trial pits at the spot where the dam will cross the Vyravanar, the field work for the first scheme is complete. The second scheme has not at present advanced beyond establishing the possibility of diverting the Pambyar and a portion of the Kullar. The area of the catchment, the drainage from which can be diverted into the Periyár, is roughly estimated at between 60 and 70 square miles. The catchment has yet to be surveyed and the river gauged. As, however, the flood water from this catchment naturally flows in a catchment other than the Periyár, the preparation of estimates for the first scheme need not be delayed until the survey of this catchment is completed and the rivers have been gauged, operations which will take some time.

5. The first scheme has a two-fold value, viz., irrigation and the development of electrical power. At present the latter problem presents considerable difficulties owing to the lack of continuity of flow. But with the provision of a lower reservoir, continuity of flow is possible, as the upper reservoir can be emptied into the lower one during the time of closure.

6. This scheme involves cutting down the escape and providing lift shutters and also provides for passing part of the surplus water through a cut through Kumili and over a weir at the flank of the lower reservoir, thus affecting the proposals put forward in the Government order under reference.

7. The increased storage capacity will be roughly about 7,500 millions, of which nearly 5,000 millions will be in the lower reservoir. The average annual surplus has already been given in my previous note and I need not recapitulate, except to state that the annual surplus since the date of the note referred to has exceeded the quantity stated in that note.

8. As regards the development of the electrical power, the following figures show the possibility of its development The fall available is 1,100 feet and a quantity of 500 cusecs nominally develops 62,500 H.P. 500 cusecs means 1,300 millons cubic feet per mensem; from the capacity of the lower reservoir, it will be seen that there is sufficient capacity to tide over more than a three months' closure. The H.P. given is, of course, not that which would be developed at the dynamo. The quantity of 500 cusecs is what I think can be safely reckoned on. It is, however, probable that when the scheme is worked out in detail it will be found that the sacrifice of a little irrigation will give a large quantity and consequently a larger power.

9. As regards the application of the power, I have expressed my views in an unofficial note in the Public Works Secretariat file. Beyond the electrification of a portion of the South Indian Railway, there is immediate use for 1,200 H.P. in the Madura Mills and no doubt other commercial concerns and Municipalities would absorb another 3,800 H.P. Further, there is the possibility of starting an aluminium industry, should Mr. Hayden's recent investigations prove successful.

10. It is not in my opinion desirable to separate the preparation of the irrigation scheme from the preparation of the electrical scheme at any rate in the initial stages, because from the nature of the circumstances the two are interdependent in order to obtain the best possible financial result. For instance, it may turn out that the sacrifice of 5,000 acres of irrigation might mean an additional 1,000 H.P. and the income from the latter will be at least double that of the former.

11. I think that I have said sufficient to show that the first portion of the Periyár investigation is sufficiently advanced for the preparation of plans and estimates and I am personally fully convinced that with this should go the initial stages of the power scheme.

12. Should either the irrigation or the power scheme work out successfully, the erection of falling shutters as proposed in the papers preceding the issue of G.O., No. 420 I. of 9th April 1903, would be an unnecessary expense. The only way of avoiding part of such unnecessary

expense would be to adopt the suggestion made by Colonel Smart and which I discussed with him some time ago. Even this would mean some unnecessary expense and as the field work has been finished, I would suggest that the preparation of plans and estimates for the irrigation and power schemes be undertaken at once. It is not possible to accomplish the work quickly whilst holding charge of the division and I would therefore suggest an officer being placed on special duty. I may add that I am willing to undertake the work, should Government see fit to entrust me with it.

From E. G. STANLEY, Esq., Officiating Under Secretary to the Government of India, Public Works Department (Civil Works—Irrigation), to the Joint Secretary to the Government of Madras, Public Works Department, Irrigation Branch, dated Calcutta, 1st December 1903, No. 1612 C.W.I.

Referring to the correspondence ending with the Madras Government Proceedings No. 420 I., dated the 9th April 1903, on the subject of falling shutters of the Periyár escape channel, I am directed to invite the attention of the Local Government to paragraphs 236 and 250, part II, of the Report of the Indian Irrigation Commission.

ORDER—No. 98 I., dated 1st February 1904.

The following letter will be sent to the Government of India :—

[Here enter No. 99 I., dated 1st February 1904.]

(True Extract.)

Ag. Under Secretary to Government,
Irrigation Branch.

To the Chief Engineer for Irrigation, } with copy of letter.
„ Superintending Engineer, VI Circle, }

Exd. P. Seetharam.

IRRIGATION.
ACCOUNT.

Government {1904} of Madras.

PUBLIC WORKS.

Recd. } 1904. *Enclosures*

Regd. *Spare copies*

Letter, No. 99 I., 1st February 1904.

FEBRUARY.

Falling shutters for the Periyar escape channel

Informing the Government of India that no detailed estimate has been prepared for the provision of — and proposing certain new works instead.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Letter—from

A. H. GARRETT, Esq.,

Joint Secretary to the Government of Madras,

Public Works Department,

Irrigation Branch,

To

The SECRETARY to the GOVERNMENT of INDIA,

Public Works Department,

Irrigation, Roads and Buildings.

Sir,

In reply to your letter No. 1612 C.W.I., dated 1st December 1903, I am directed to inform you that no detailed estimate for falling shutters has been prepared. These shutters would only be of use, if no change were made in the storage capacity of the Periyár reservoir.

2. The necessity for increasing the capacity of the reservoir has now been fully established, and as it would be unsafe to allow water to rise above R.L. + 157·00, it is considered that the work best suited to the requirements of the case would be a regulator with sill 8 feet below crest of present escape, spans of 35 feet, and shutters 16 feet in height.

3. With a work of this kind, F.S.L. of the lake could be raised 8 feet, the capacity being increased by 2,361 millions of cubic feet. If thought desirable, additional escape power could be afforded by a cutting through Kumili, which, when the lake is at M.W.L., would enable 10,000 cusecs to be sent down into the Cumbum valley instead of going to waste as at present.

4. A rough estimate of the cost of the works above alluded to is given in the margin, and detailed estimates will be put in hand at once.

	RS.
Lowering escape channel to R.L. 136·00	1 lakh.
Regulator with Stoney's shutters	3 lakhs.
Kumili cut to discharge 10,000 c.f.s.	3·5 ,,

5. As the lowering of the escape channel by four feet has been decided to be necessary in any case, I am to request that sanction may be given by wire to the commencement of this work which will probably occupy the whole of the present working season.

6. If the proposed regulator is sanctioned, the removal of the parapets of the dam would be unnecessary, but to be on the safe side it might be as well to carry out this work also this season, as it will be some time before the regulator can be built.

7. Surveys are being made for a reservoir at the foot of the hills, but this is hardly likely to prove a remunerative undertaking if used solely for irrigation, and not as part of a scheme for the development of electrical energy.

I have the honour to be,

Sir,

Your most obedient servant,

(Signed) A. H. GARRETT,
Joint Secretary to Government,
Irrigation Branch.

MADRAS,
1st February 1904.

Exd. P. Seetharam.

27/12/56/34.

IRRIGATION.
ACCOUNT.

Government {1904} of Madras.

PUBLIC WORKS.

Recd. } 1904 *Enclosures*

Regd. *Spare copies*

G.O., No. 98 I., 1st February 1904.

FEBRUARY.

Falling shutters for the Periyar escape channel

Ordered that a letter be sent to the Government of India stating that **no detailed estimate has been** prepared for the provision of — and proposing **certain new works instead.**